

ASSOCIATION BETWEEN AIRBORNE POLLEN AND ASTHMA EMERGENCY ROOM ADMISSIONS DURING SAHARAN DUST INTRUSIONS

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Background and Aims: A previous study reported larger mortality risk during Saharan dust days compared to non-Saharan dust days in Barcelona, Spain (Perez et al. 2008). No studies are available of potential interaction effects of Saharan dust with other environmental risk factors of natural origin on human health. Our objective is to investigate if the risk of asthma morbidity due to airborne pollen concentrations increases during Saharan dust outbreaks.

Methods: Data were collected on the daily number of asthma emergency room admissions, mean daily concentrations of the major pollen types with allergenic capacity: *Olea*, *Plantago*, Poaceae and Urticaceae, and Saharan dust intrusions from 2005 to 2007. Changes of effects between Saharan and non-Saharan dust days were assessed using Poisson regression models, adjusting for trend and seasonality and meteorological variables.

Results: During non-Saharan days the strongest associations for pollen types ranged from a lag of 2 to 6 days and showing risks of asthma lower than 2.5%, for an increase of 1 pollen grain/m³. In the course of Saharan outbreaks the lagged effect of pollen types was shorter, of 1 day for all pollen types, and the risk of asthma much higher: 6% for Urticaceae, 13% for Poaceae, 16% for *Olea*, and 35% for *Plantago*, although estimates were only statistically significant ($p < 0.05$) for Poaceae and *Plantago*.

Conclusions: Saharan dust outbreaks have strong acute respiratory effects. Further investigations are needed to understand the mechanisms that explain these observations.

References: Perez L, Tobías A, Querol X, Künzli N, Pey J, Alastuey A, Viana M, Valero N, González-Cabré M, and Sunyer J. Coarse particles from Saharan dust and daily mortality. *Epidemiology* 2008;19:800-7.